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If $\frac{a^2 - b^2}{a^2} = \frac{n}{n+1}$, then $n = \frac{a^2 - b^2}{b^2}$. Substituting this value of n, $b_n{}^2 = a^2$. Hence, the last ellipse is a circle.

Also solved by NORMAN ANNING, GRACE M. BAREIS, PAUL CAPRON, H. O. HANSON, OLIVE C. HAZLETT, E. J. OGLESBY, H. L. OLSON, ARTHUR PELLETIER, J. L. RILEY, C. P. SOUSLEY, ELIJAH SWIFT, and H. S. UHLER.

NOTES AND NEWS.

IT IS HOPED THAT READERS OF THE MONTHLY WILL COOPERATE IN CONTRIBUTING TO THE GENERAL INTEREST OF THIS DEPARTMENT BY SENDING ITEMS TO THE EDITOR-IN-CHIEF.

Mr. L. M. GRAVES of Chicago, has been appointed instructor in mathematics at Washington University.

Miss LOUISA M. WEBSTER, associate professor of mathematics at Hunter College, has been appointed principal of the Hunter College High School.

Mr. H. L. OLSON, of the University of Wisconsin, has been appointed instructor in mathematics at the University of Michigan.

At the University of Nebraska, Dr. T. A. PIERCE has been promoted to an assistant-professorship of mathematics; Mr. W. M. BOND and Mr. C. R. SHERER have been appointed instructors, and Miss C. RUMMONS assistant instructor.

Mr. OSCAR SCHMIEDEL has been appointed professor of mathematics at Nebraska Wesleyan University.

H. S. MYERS, for four years professor of mathematics at Huron (S. D.) College, has taken a similar position at Southwestern College, Winfield, Kansas.

Professor SOLOMON LEFSCHETZ of the University of Kansas will be absent on leave during this academic year most of which he will spend in Europe.

Professor HARRIET GLAZIER of Western College for Women has been given an extended leave of absence for a second year and will spend the year at Southern Branch of the University of California, filling the vacancy caused by the absence for the year of Professor MYRTIE COLLIER.

At the University of Texas Miss ANNA MULLIGAN and Miss HELMA HOLMES have been appointed instructors, and Mr. CLAUDE BAILEY, tutor, in mathematics.

Mr. O. C. COLLINS, of Oxford University, England, has been appointed instructor in mathematics at the University of Nebraska.

Mr. C. E. HARRINGTON, M. E. (Cornell), has been appointed as an instructor in mathematics at the University of Buffalo.

Professor E. H. THOMAS of Tabor College has been appointed professor of physics at Southeast Missouri State Teachers College.

Mr. J. B. ROSENBACH, last year at the University of Illinois, has been appointed to an instructorship in mathematics at the Carnegie Institute of Technology. During the summer vacation Mr. Rosenbach was employed in the valuation department of the Atchison, Topeka and Santa Fe Railway.

Miss Claribel Kendall of the University of Colorado will spend her year's leave of absence at the University of Chicago as Fellow in mathematics, her place being supplied by W. H. Hill of Greeley (Colo.) High School.

Dr. E. G. Bill has been promoted to a full professorship of mathematics at Dartmouth College.

Dr. O. J. Ramler has been promoted to be associate professor of mathematics at the Catholic University of America.

Mr. F. V. Morley, of Johns Hopkins University, has left for study at Oxford University where he enters as a Rhodes Scholar.

Dr. Daniel Buchanan, professor of astronomy and mathematics at Queen's University, has been appointed professor of mathematics and head of the department at the University of British Columbia.

In the department of mathematics at the University of Minnesota Associate Professor R. W. Brink [*1920*, 382], who has been lecturer at the University of Edinburgh during 1919–20, has resumed his work. Mr. C. M. Jensen, of the University of Minnesota, and Miss Ruth Askeland, of Hamline College, have been appointed teaching fellows; and Miss Elizabeth Carlson, of the University of Minnesota, a teaching assistant.

At the University of Wyoming Professor C. B. Ridgaway is retiring after twenty-four years' service; Professor C. E. Stromquist has been made head of the department; A. R. Fehn of Kansas Agricultural College has been made associate professor of mathematics, and Lucy A. Feddersen has been appointed instructor in mathematics in the University High School.

At the University of Pennsylvania Assistant Professor F. H. Safford has been promoted to a full professorship of mathematics; Dr. R. A. Arms has resigned his instructorship to accept a professorship at Pennsylvania College; and Mr. H. M. Gehman and R. W. Hartley have been appointed instructors in mathematics.

At the University of Alberta, Lecturer George Robinson has been appointed assistant to Professor E. T. Whittaker in his mathematical laboratory in Edinburgh; Mr. T. H. Milne, of the department of physics at the University of Toronto has been appointed lecturer in mathematics; Mrs. E. T. Mitchell, of the University of Alberta, has been appointed instructor.

At the University of California, Dr. A. R. Williams, for three years instructor in the Shipping Board at Portland, Oregon, and Dr. C. D. Shane have been appointed instructors; Mrs. A. D. B. Shane, Ph.D., Miss Nina Alderton, Miss G. M. Campbell, and Messrs. P. H. Daus, B. C. Wong, Victor Steed and J. F. Pobanz have been appointed assistants.

At the University of Saskatchewan, Professor L. L. Dines [*1919*, 84] is acting head of the department of mathematics while Professor G. H. Ling is spending a year in Europe. Dr. I. A. Barnett has been appointed assistant professor of mathematics, having been released from his acceptance of an instructorship at the University of Illinois [*1920*, 190].

In the department of mathematics at the University of Illinois, Associate

Professor R. D. CARMICHAEL has been promoted to be a professor and Drs. L. L. STEIMLEY and C. F. GREEN have been advanced from assistantships to instructorships; Drs. B. MARGARET TURNER and MARGARET HASEMAN, of Bryn Mawr, have been appointed instructors; Associate Professor E. R. SMITH, of Pennsylvania State College, has leave of absence for a year to serve as an associate; Messrs. J. W. WAGNER, of Baldwin Wallace College, H. A. BENDER, instructor in Muskingum College, L. H. McFARLANE, of the University of Missouri, R. F. GRAESSER and J. W. HEARST, of the University of Illinois, and Mrs. FENNER STICKNEY, of the University of California, have been appointed assistants.

Dr. EINAR HILLE, of the University of Stockholm, is studying mathematics at Harvard University as a fellow of the Swedish-American Foundation.

ERIC DOOLITTLE, professor of astronomy in the University of Pennsylvania and director of the Flower Observatory since 1912, died on September 21, 1920, aged sixty-one years. He was instructor in astronomy at the University of Pennsylvania 1896–1904, and assistant professor 1904–1912. We have already referred [*1919*, 178] to the death of his father, Professor C. L. DOOLITTLE, his predecessor as director of the Flower Observatory.

T. R. DAVIES, assistant professor of mathematics at McGill University since 1909, died on August 19, 1920, aged fifty-six years. He was born in England and graduated at the University of Cambridge. For several years he was headmaster of Abingdon school, Montreal. In 1907 he was appointed lecturer in mathematics at McGill.

K. H. STRUVE, director of the Berlin-Babelsberg Observatory, and professor of astronomy in the University of Berlin since 1904, died August 12, 1920, aged sixty-six years. Professor Struve was a Russian by birth. His father O. W. STRUVE (1819–1905) and grandfather F. G. W. STRUVE (1793–1864) were also astronomers—working for many years in Russian observatories.

Sir J. N. LOCKYER died August 16, 1920, aged eighty-four years. He was the founder of *Nature*, director of the Hill Observatory, Salcombe Regis, Sidmouth, England, and late director of the solar physics observatory, South Kensington, 1885–1913. For sketches of his life and work see *Nature*, August 19, 26, and September 2, 1920.

Dr. GIOVANNI CELORIA, director of the observatory of Brera, Milan, since 1900, and author of numerous books and papers on astronomical subjects, died August 17, 1920, aged 78 years.

Dr. P. G. H. BACHMANN, professor at the University of Münster from 1875 till made professor emeritus in 1900, died on March 31, 1920, aged eighty-three years. He wrote many books and papers in the field of theory of numbers, and was the author of the sections on "Analytische Zahlentheorie," 1900, and "Niedere Zahlentheorie," 1900 (French editions 1906–1910), in the *Encyklopädie der mathematischen Wissenschaften*. His most recent book was *Das Fermatproblem in seiner bisherigen Entwicklung*, 1919. Among his earlier works were the following: *Die Lehre von der Kreistheilung und ihre Beziehung zur Zahlentheorie*, 1872 (translated into Italian); *Die Elemente der Zahlentheorie*, 1892; *Die analytische Zahlentheorie*, 1894; *Die Arithmetik der quadratischen formen*, 1898; *Niedere Zahlentheorie*, 1902–1910; *Allgemeine Arithmetik der Zahlenkorper*, 1905; and *Grundlehren der neueren Zahlentheorie*, 1907.

JOHN PERRY, emeritus professor of mechanics and mathematics, Royal College of Science, South Kensington, London, died August 4, 1920, aged seventy years. He was born in Ulster and educated at Queens College, Belfast. From 1875 to 1879 he was professor of engineering in Japan, and from 1881–96 professor of engineering and mathematics at the City and Guilds of London Technical College, Finsbury. He was the author of many books and scores of papers; among the former are: *Practical Mechanics*, 1883; *Spinning Tops*, 1890 (2nd German ed. 1913); *Calculus for Engineers*, 1897 (German ed. 1902, 2nd ed. 1910; Russian ed. 1904); *Applied mechanics*, 1897 (French ed. 1913; German ed. 1908); *Practical Mathematics*, 1899, 1907, 1910 (Russian ed. 1909); and *Elementary Practical Mathematics*, 1913. There were many other translations of his books into foreign languages. Perry's *England's Neglect of Science*, 1900, and *Discussion on the Teaching of Mathematics* (which he edited), 1901, contain arguments against the culture value of mathematics—the basis of the "Perry movement" (Cf. *Report of the National Committee of Fifteen on Geometry Syllabus*, Washington, 1912, pp. 27–28). For a sketch of Perry's career see *Nature*, August 12, 1920.

The twenty-seventh meeting and ninth colloquium of the American Mathematical Society were held at the University of Chicago, September 7–11. One hundred and one members of the Society were present at the meeting and thirty four papers were read. The authors of thirty-two of these papers are also members of the Association; for details see the *Bulletin of the American Mathematical Society*, November, 1920. The attendance of eighty-eight persons at the colloquium was considerably in excess of that at any previous colloquium. Two courses of five lectures each were given "Dynamical systems" by Professor G. D. Birkhoff, and "Topics from the theory of functions of infinitely many variables" by Professor F. R. Moulton.

At the meeting of the American Academy of Arts and Sciences on October 13 the following communications were delivered by members of the Association: "Einstein's first theory of relativity" by C. L. E. Moore; "Einstein's generalized relativity or theory of gravitation" by G. D. Birkhoff.

The so-called International Congress of Mathematicians [*1920*, 191] was held at Strasbourg, September 22–30, 1920. The first and fifth days, and the last two days, were reserved for excursions. There were four general lectures, one by L. E. DICKSON, University of Chicago, on "Relations between the theory of numbers and other branches of mathematics"; the others by Larmor, De la Vallée-Poussin, Volterra, and Nörlund. The papers were read in each of four sections; among the speakers were eight American mathematicians. In Section I (Arithmetic, Algebra, Analysis) there were 33 papers of which the following were by American mathematicians: "Homogeneous polynomials with a multiplication theorem" by L. E. DICKSON; "On Stieltjes integrals and Volterra compositions" by P. J. DANIELL, Rice Institute; "On certain iterative properties of bilinear operation" and "On the theory of sets of points in terms of continuous transformations" by N. WIENER, Massachusetts Institute of Technology; "Quelques remarques sur la multiplication complexe" by S. LEFSCHETZ, University of Kansas; "On the location of the roots of a polynomial" by J. L. WALSH, Harvard University. In Section II (Geometry) the 13 papers presented included: "La géométrie des variables complexes" by J. S. TAYLOR, Massachusetts Institute of Technology; "Transformation des systèmes conjugués R" and "Transformation des surfaces applicables sur une quadrique" by L. P. EISENHART, Princeton University; "Method of classifying all polygons having a given set of vertices" by F. H. MURRAY, Harvard University. In Section III (Mechanics, mathematical physics, applied mathematics) there were 23 papers; in Section IV (Philosophical, historical and pedagogical questions), 10 papers.

Only three Englishmen took part in the program: Larmor, Young, and Greenhill; Italians, Spaniards, and Scandinavians, as well as Germans and Austrians, were conspicuously absent. The total attendance was above 200. The International Mathematical Union voted to hold the International Mathematical Congress of 1924 in the United States.

The following 16 doctorates with mathematics as major subject were conferred by American universities in the academic year 1919–1920; the title of the dissertation is added in each case: E. M. BERRY, Iowa, "Diffuse reflection"; J. D. BOND, Michigan, "Plane trigonometry in Richard Wallingford's Quadri partium de sinibus demonstratis"; J. DOUGLAS, Columbia, "On certain two-point properties of general families of curves"; T. C. FRY, Wisconsin, "The use of divergent integrals in the solution of differential equations"; GLADYS GIBBENS, Chicago, "Comparison of different line-geometric representations for functions of a complex variable"; C. F. GREEN, Illinois, "On the summability and regions of summability of a general class of series of the form $\Sigma c_n g(x + n)$"; J. W. LASLEY, Chicago, "Some special cases of the flecnode transformation of ruled surfaces"; ELSIE J. MCFARLAND, California, "On a special quartic curve"; J. J. NASSAU, Syracuse, "Some theorems in alternates"; C. A. NELSON, Chicago, "Conjugate systems with conjugate axis curves"; E. L. POST, Columbia, "Introduction to a general theory of elementary propositions"; SUSAN M. RAMBO, Michigan, "The point at infinity as a regular point of certain difference equations of the second order"; L. L. STEIMLEY, Illinois, "On a general class of series of the form $Y(x) = C_0 + \Sigma C_n g(nx)$"; J. L. WALSH, Harvard, "On the location of the roots of the jacobian of two binary forms"; R. WOODS, Illinois, "The elliptic modular functions associated with the elliptic norm curve E^7"; T. YANG, Syracuse, "A problem in differential geometry."

In this MONTHLY, *1920*, 341, a general statement was made concerning the inferiority of the doctorat de l'université, in contrast to the state doctorate, as awarded in France to mathematicians. Professor HARRIS HANCOCK has kindly sent us a copy of a letter, written in July, 1900 by Professor Gaston Darboux, dean of the faculty of sciences, from which it appears that at the University of Paris an exception should be made to the general statement. The "doctorat de l'université de Paris" is considered by that faculty of sciences as on a par with the state doctorate; Darboux wrote: "les épreuves sont les mêmes, la séverité est la même pour les deux doctorats."

There are several vacancies for the position of computer at the Ballistic Station of the U. S. Ordnance Department, situated in the Coca Cola Bldg., Baltimore, Md. It is hoped to fill these with recent college graduates, either young men or young women who have completed a course in calculus and would like experience in practical computational work for a year at least. Owing to the present urgency and the difficulties experienced, the initial salary offered has been usually $1400. Further particulars may be obtained by addressing the Ballistic Station.

THE WORK OF THE NATIONAL COMMITTEE ON MATHEMATICAL REQUIREMENTS.

September 15, 1920 [*1920*, 341–342].

The National Committee on Mathematical Requirements held a meeting at Lake Delavan, Wisconsin, on September 2, 3, and 4 at which a number of reports were discussed and adopted. A report on "The revision of college entrance requirements" received the greatest amount of discussion. It is hoped that this report may be released for publication late in October. It includes a general discussion of the present problems connected with college entrance requirements in mathematics. It is a report of an investigation, recently made by the National Committee, concerning the values of the various topics in elementary algebra as preparation for the elementary college courses in other subjects. It contains also a suggested revision of the definitions of entrance units in elementary algebra and plane geometry. In connection with the suggested requirements in plane geometry a list of fundamental propositions and constructions is attached. This list includes the propositions which may be assumed without proof or given informal treatment, a list of the fundamental theorems and constructions from which it is intended that questions on entrance examination papers other than originals be chosen, and a list of subsidiary theorems. It is proposed to prepare a mimeographed edition of this list of propositions and constructions at the earliest possible moment for the benefit of such teachers as may desire to make use of it in connection with their classes during the coming year. A copy will be sent to any person interested upon application to the Chairman of the Committee (J. W. Young, Hanover, New Hampshire).

A preliminary draft of a report on "Mathematics in experimental schools" was discussed at this meeting. Mr. Raleigh Schorling of the Committee has spent over a year collecting material for this report. It is hoped that it will be ready for publication early next spring. The report will be an extensive one and will describe in detail the work actually done in mathematics in experimental schools throughout the country.

Miss Vevia Blair of the Committee presented her report on the "Present status of disciplinary values in education." It is expected that this report also will be released for publication in October. It gives a critical review of the complete literature concerning the experimental work on the transfer of training as well as an evaluation of this literature terminating in the formulation of certain propositions concerning disciplinary values which appear justified by the experimental work. A particularly valuable feature of the report would seem to lie in the fact that a large majority of the most prominent psychologists in the country appear to be ready to subscribe to the propositions formulated.

Professor E. R. Hedrick presented a report which he prepared at the request of the National Committee on "The function concept in secondary school mathematics." This report also will be published in the near future and is intended ultimately to form a part of the final report of the Committee on the "Reorganization of the first courses in secondary school mathematics." (A preliminary report on this subject was published for the Committee by the U. S. Bureau of Education last February as Secondary School Circular No. 5.)

A preliminary report on "Junior high school mathematics" is in the press of the U. S. Bureau of Education and should be ready for distribution early in October. The National Committee desires the assistance of its cooperating organizations, which now number over 70, in the revision of this preliminary report. Comments, suggestions and criticisms should be sent to the Chairman of the Committee not later than January 1, 1921, in view of the fact that the Committee expects to take up the formulation of its final report on this subject immediately after this date.

A subcommittee under the chairmanship of Professor C. N. Moore is preparing a report on "Elective courses in mathematics in secondary schools." A committee under the chairmanship of Professor David Eugene Smith is preparing a report on "The standardization of terminology and symbolism" and Professor R. C. Archibald is preparing one on "The training of teachers." It is expected that two of these reports will be presented for the consideration of the National Committee in October.

The work of the National Committee and its recommendations were discussed in teachers classes at the summer sessions of colleges, universities and normal schools throughout the country. Addresses on the work of the Committee were given as follows: by Mr. Raleigh Schorling at Harvard University, by Professor E. R. Hedrick at the Universities of Texas and of Oklahoma, and by Mr. J. A. Foberg at the Universities of Iowa and Minnesota.

Present indications point to the fact that the work of the National Committee will have a prominent place on the programs of most teachers organizations throughout the country during the coming year. The National Committee stands ready as before to help in every possible way in the preparation of such programs and will be glad to furnish material for discussion.

It will also be pleased to furnish speakers for such meetings to the extent of its ability.